

NEW AUSTRALIAN DIPTERA FROM ANTS' NESTS.

By FREDERICK KNAB and J. R. MALLOCH, Bureau of Entomology, U.S. Department Agriculture, Washington, D.C.

Communicated by A. M. LEA.

[Read October 10, 1912.]

The *Diptera* described in the following are an interesting addition to the myrmecophilous fauna, particularly the two *Syrphidæ* here described as species of *Microdon*. While the *Microdontinæ* are believed to be generally myrmecophilous in the larva state, but very few species have been actually bred from ant nests. There has particularly been some doubt as to the habits of the more anomalous forms, such as these here described; it will thus be seen that differences in the organization of the imago bear no relation to the larval habits.

All the species of *Microdontinæ* so far reported from Australia show the pedunculate wasp-like abdomen, quite unlike the typical species of *Microdon*. We were, therefore, at first inclined to put the species from Victoria (*M. daveyi*) in a separate genus, but a review of the literature and examination of material from remote parts of the world has led us to a more conservative course. It was found that the genus *Mixogaster*, to which one of the Australian species has been wrongly referred, is quite a distinct concept, and apparently confined to America; *Ceratophya* was poorly defined, and it is extremely doubtful that the Australian species should be referred to it. A last objection arose in the fact that species occur elsewhere which intergrade with the Australian ones in the shape of the abdomen.

***Microdon daveyi*, n. sp.**

♀. Dull-black, finely granulose, ornamented with golden pubescence. Frons at vertex at least one-third as wide as head, widening towards the antennæ, covered with golden pubescence except on a transverse patch at lower extremity of ocellar triangle; face projecting immediately below antennæ, flattened and nearly straight, perpendicular in profile, descending to slightly below lowest level of eyes, thickly covered with golden pubescence; postocular cilia yellow. Antennæ long, the two basal joints ferruginous, the third black, proportions 6-1-12; arista as long as basal joint (6), bare, ferruginous; third joint subcylindrical, very slightly

narrowed towards base, the apical half thickened, apex bluntly pointed. Thorax with a band of golden pubescence immediately in front of the suture, narrowed or broadly interrupted in the middle; lateral and posterior margins sparingly golden pubescent; the presutural band is carried down over the pleuræ. Scutellum transverse, rounded, unarmed, with distinct golden pubescence on disc. Abdomen petiolate, first and second segments about half as broad as thorax, the first short and thickened basally, the third to fifth segments together elongate, ovate, but slightly broader than thorax; first segment with a group of yellowish white hairs at the sides; second segment shining and only granulose on apical half, ridged in the middle, broadly yellowish laterally at middle and narrowly on posterior margin, posterior margin especially laterally, with golden pubescence; third and fourth segments with scattered golden hairs and broad apical, transverse, golden fasciæ formed of thickly-placed golden hairs, but imperfectly interrupted at middle; fifth segment with golden pubescence becoming denser towards apex; ovipositor bifid, pale-ferruginous, slightly hairy. Legs pale-ferruginous tinged with brown, femora mostly black, the apices pale-ferruginous; tibiæ thickened on apical half and somewhat curved, medianly more or less darkened; tarsi broader than tibiæ, the joints very short; all the legs with dense, short, yellowish white hairs; mid femora with long pubescence on posterior surface. Wings infuscated from base to middle of first posterior cell above fourth vein, beyond this point above third vein, broad infuscations along fifth vein, cross-veins, and particularly the veins closing first posterior and discal cells; veins black; venation typical for *Microdon*, the stump of third vein projecting about half-way across first posterior cell, last section of fourth vein straight, nearly rectangular with third vein, a minute stump at angulation; anterior cross-vein but slightly more than its own length from base of discal. Halteres ferruginous. Length, 7-9 mm.

Ararat, Victoria, Australia (H. W. Davey), five specimens reared from larvæ in ants' nest.

The puparium is of the shape usual in *Microdon*, elongate-elliptical, nearly straight-sided with very slight indications of constrictions near the middle, strongly convex, the ventral surface (by which it is attached) perfectly flat; colour ferruginous-yellow, the margin slightly darker, thoracic horns ferruginous-brown, posterior respiratory horn reddish-brown, pruinose; the dorsal surface shows a median longitudinal crease extending the entire length to the posterior respiratory tubercle; on each side of this the surface is broken into reticulations, larger and forming fairly regular rows towards

the middle, somewhat smaller and more irregular towards the sides, there being about ten longitudinal rows on each half; the surface is granular and the reticulations are produced by rows of closely approximated minute, white, tuberculate spines; the surface between the reticulations is somewhat depressed; the posterior respiratory tube is somewhat thickened at the base, with a dorsal basal swelling, bluntly rounded at tip, the surface coarsely granular. Length, 8.5 mm.; width, 5 mm.; height, 3 mm.

***Microdon brachycerus*, n. sp.**

♂. Black and ferruginous, ornamented with pale-golden pubescence. Frontal stripe at vertex one-fifth as wide as head, at frons half as wide as at vertex, with long hairs which are yellow at sides; face convex, prominent, slightly retreating towards mouth, polished; frons and face with whitish-yellow pubescence. Antennæ short and stout, ferruginous, comparative lengths 3-1-16; third joint thick, hardly compressed, bluntly pointed; arista thick, shorter than third joint: the two basal joints with numerous short hairs. Thorax black, margined with golden-yellow, long pubescence, most conspicuous on posterior margin: a transverse, arcuate fascia of golden hairs before the middle; pleuræ with long yellowish-white hairs on anterior half; scutellum prominent, with two short, stout teeth, black with short black pubescence similar to that on dorsum of thorax. Abdomen longer than broad, broadest at apex of second segment, ferruginous and black; first segment black, second dark basally and along apical margin, third darkened on apical half, the very long fourth segment with two large, indistinct, dark, lateral patches; all the segments with short golden pubescence, most conspicuous on posterior margin of third segment. Legs ferruginous, the femora darker, fore and mid femora with rather noticeable white pubescence posteriorly; all the tarsi thickened; fore tarsi shorter than tibiæ, the joints decreasing in length, except the last, fourth very short, twice as broad as long; hind tarsi similar but the first joint broader than tibiæ. Wing with the outer half grey above the third vein, and broadly tinged with grey along the cross-veins and the fourth and fifth veins, the darkening produced by dense, microscopic, downy hair; stump of the third vein well developed, extending more than half-way across first posterior cell; vein closing the discal cell bent strongly inward at first but finally joining the fourth vein at nearly a right angle. Length, 8 mm.

One male. Hobart, Tasmania, from ants' nest (A. M. Lea).

The puparium is of the shape usual in this genus: elliptical, strongly convex, flattened beneath where it is attached to a stone or other surface. The colour is dull yellowish-brown, obscured by irregularly attached particles of earth; the anterior pupal respiratory horns and the posterior larval ones are ferruginous; posterior respiratory tubercle bifid at tip. The dorsal surface is nearly smooth and shows none of the usual reticulations, but instead is studded with scattered prominent brown tubercles (somewhat obscured by the attached particles of earth). Length, 7 mm.; width, 5.5 mm.; height, about 3 mm.

Microdon brachycerus appears to be related to the Tasmanian species described by Macquart as *Aphritis vittatus* and *A. pictipennis*. The figure of the wing given by Macquart for the latter species (Dipt. Exot., Suppl. 4, pl. xii., fig. 12) agrees very well with the wing of our species; however, there are too many other differences (even allowing for Macquart's notorious inaccuracies) to admit the identity of the specimen before us with *pictipennis*. Furthermore, Macquart himself had some doubt that the male he described under *pictipennis* is correctly associated, and there is nothing to indicate whether the figure of the wing was taken from the female or male. In *M. brachycerus* the antennæ are unusually short and stout.

***Limosina mrymecophila*, n. sp**

♀. Shining black. Frons brown, shining, devoid of hairs, only the strong bristles present; these consist of two upwardly divergent central rows of three each, which are slightly incurved, of almost equal strength, and equidistant serially; a pair of closely-placed, nearly equal-sized bristles at above the middle near to eye margin, one near lateral posterior angle, one post-vertical on each side and one pair on ocellar triangle; antennæ clear yellow, first joint as long as third (the apparent second), first joint with several black bristles on inner surface, third joint slightly pubescent; arista very long and thin, slightly pubescent; face yellow, darker towards antennæ, one very long and strong and 2-3 very small bristles on jowls; palpi small, yellow. Thorax shining black, bare in front, the usual pubescent hairs increasing in number and length towards posterior margin, two distinct pairs of dorso-central bristles; scutellum large and broad, regularly rounded on posterior margin. Abdomen highly polished, bare except on posterior margin of last two and lateral margins of all segments; third segment with a raised transverse ridge at close to posterior margin. Legs

black, only the trochanters, extreme bases of tibiae, and tarsi yellowish; fore femora with 2-3 strong bristles near tip on antero-ventral surface; fore tibiae pubescent; mid femora with two antero-dorsal bristles at near tip; mid tibiae with one strong dorsal bristle at slightly beyond basal third and two at about apical fourth—one each on antero—and postero-dorsal surfaces, besides these strong bristles there are several weaker hair-like ones, two of which are at basal third and one at apical third, as well as many strong hairs; hind femora and tibiae with numerous hairs but no bristles. Wings with costa spined, more numerous and weaker beyond first vein; first costal division about twice longer than second, third four times as long as second and distinctly longer than fourth; second vein twice curved, nearer to costa on basal half than on apical half, striking costa at right angles; third vein only slightly bent upward and reaching margin at close to tip; fourth vein reaching fully half-way to wing margin; fifth vein distinct to mid-way to margin; cross-veins nearly upright; first costal cell brown, second clear, third dark at base, middle, and tip; second submarginal cell brown at tip; a brown streak from front margin to near hind margin at middle, and a large rounded spot at near basal third; first posterior cell with the tip brown and a rounded spot beyond and one before middle; the entire hind margin of wing brown, with only an inverted U-shaped clear patch in second posterior cell and two clear spots near anal angle; discal cell with a rather triangular patch of brown on lower margin at middle. Halteres black. Length, 2 mm.

One female. Otford, New South Wales, Australia (A. M. Lea). With the ant *Ectotomma metallicum*.
